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ONYPTERYGIA DONATO, A NEW SPECIES FROM COSTA RICA (COLEOPTERA: CARABIDAE: PLATYNINI)

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Abstract.—Based on a unique combination of structural features (especially color pattern of elytra and reduction of the flight mechanism), the new species **Onypterygia donato** is described (type locality, COSTA RICA, Province of Puentarenas, La Amistad National Park) and distinguished from its putatively closest relatives, *O. championi* Bates and *O. iris* Chaudoir.

Key Words: Coleoptera, Carabidae, new species, *Onypterygia donato,* Costa Rica

Proposed by Dejean (1831: 346), the genus *Onypterygia* included several Middle American species, in addition to *O. fulgens* Dejean (1831: 348). Hope (1838: 72) designated the last-named as type species of this genus. Chaudoir (1878: 275) revised it, using the invalid emendation *Onchopterygia,* proposed by Gemminger and Harold (1868: 324). Casey (1920: 224) pointed to relationships of *Onypterygia* with the "Platynid series of genera," an opinion refined by Whitehead (1973: 175), who postulated close relationship between *Onypterygia* and *Platynus* Bonelli (1810). Liebherr (1986: 22 and 26) indicated that *Onypterygia* was related not to the basal stock of *Platynus,* but rather to one of the included lineages.

Reichardt (1977: 413) included *Onypterygia* in his treatment of the Neotropical genera of Carabidae. Liebherr (1986: 28) provided a key to the North American platynine genera, including *Onypterygia.* Erwin et al. (1977: 4.31) provided a list of names of the species of *Onypterygia.*

At the time of his death in 1990, Donald R. Whitehead had prepared a large part of a revision of the Middle American platynine carabid genus *Onypterygia.* The purpose of this paper is to provide information about and a name for a species of this genus that Whitehead had not seen, and to be included in the revision scheduled for completion in the near future.

METHODS

Criteria for ranking.—We infer that the taxon described below is specifically distinct on the basis of a unique combination of striking morphological differences, including reduction in the flight mechanism, and chorological considerations—the specimen in question is in a locality remote from the known ranges of the two species to which it is most similar. This distribution pattern is repeated in numerous species pairs and triplets in Middle America. The evidence at hand satisfies us that the population which the single known specimen represents probably is reproductively isolated from the other known species of *Onypterygia.*

Measurements and ratios.—Those reported indicate size and proportions, and are known to be useful in recognition of species of *Onypterygia.* They were made using an ocular micrometer in a Wild S5 Ste-

Table 1. Diagnostic features of *Onypterygia* species with metallic striped elytra.

Diagnostic Features	Species of *Onypterygia*		
	O. iris Chaudoir	*O. championi* Bates	*O. donato*, n. sp.
Pronotum: lateral margins	not beaded, moderately elevated throughout length	not beaded, slightly elevated throughout length, more so basally	beaded in apical ⅔, slightly elevated basally
Metepisternum	distinctly longer than wide at base	distinctly longer than wide at base	slightly longer than wide at base
Elytra			
setigerous punctures in interval 3	three	three	two
apex	broadly rounded	acuminate	acuminate
apex of suture	rounded	subangulate-acuminate	subangulate
Hind wings	macropt., distinctly longer than elytra	macropt., distinctly longer than elytra	brachypt., less than half length of elytra

reobinocular Microscope, at a magnification of 25×:

length of head—linear distance from antero-lateral angle of clypeus to posterior margin of left eye, measured at a right angle to the long axis of the head;

width of head—linear transverse distance across compound eyes and vertex;

length of pronotum—linear distance from apical (anterior) to basal (posterior) margin, measured along the mid-line;

maximum width of pronotum—greatest linear transverse distance, measured at right angle to mid-line;

width of pronotum at base—linear transverse distance between postero-lateral angles;

length of elytra—linear distance from basal ridge to apex of apical spine of left elytron;

width of elytra—greatest linear transverse distance, from lateral margin to lateral margin, measured at right angles to suture;

length of metepisternum—linear distance from basal to apical margin, measured along the lateral (outer) edge; and

width of metepisternum—maximum linear transverse distance, measured along the basal margin.

These measurements were added or combined in ratios, and designated as follows:

TL—sum of length of head, pronotum and elytra, to express body length, in mm;

WE—width of elytra, to represent maximum width of body in mm;

WP/WH—maximum width of pronotum/width of head;

LP/WP—pronotum: length/maximum width;

WP/WPb—pronotum: maximum width/width at base;

LE/LW—elytra: length/width; and

WMe/LMe—metepisternum: width/length.

Taxonomic Treatment

Onypterygia donato, New Species

Type material.—HOLOTYPE female, labelled: "COSTA RICA: Puentarenas/ La Amistad Nat. Park/ 8°57′N, 82°50′W/ 23 Feb. 1991, 1500m/ Norman D. Penny/ Cal.Acad.Sci. Coll." (California Academy of Sciences Coll.).

Derivation of specific epithet.—Based on the Spanish form of his given name, and used by him on occasion during visits to México, this species is named in honor and in memory of the late Donald R. White-

head, Systematic Entomology Laboratory, United States Department of Agriculture.

Recognition.—Assignment of this species to *Onypterygia* is based on diagnostic features: a Middle American platynine with tarsal claws pectinate-chelate (i.e. pectinations long and prominent), and tarsomeres 1–4 with ventral vestiture of numerous flattened setae. The holotype of this species exhibits also alternately red and green striped elytra, a feature shared with adults of the Guatemalan-Mexican *Onypterygia iris* Chaudoir (1863: 225), and the Panamanian *O. championi* Bates (1882: 130). Adults of these species differ from one another by the features indicated in Table 1.

Description.—Female, habitus as in Fig. 1. TL 8.1 mm; WE 3.5 mm; WP/WH 1.67; LP/WP 0.80; WP/WPb 1.20; WMe/LMe 0.82, and LE/WE 1.50.

Color: Head and pronotum black, with slight metallic green cast. Antennae, labrum, mandibles, palpi and legs dark piceous to black. Elytra bright metallic, striped alternately cupreous or maroon (sutural margin, intervals 2 and 3, basal part of 4 and 7, and 8) and green (interval 1 [except sutural margin], apical part of 4 and 7, and 5 and 6); epipleura dark greenish-bronze. Ventral and lateral sclerites shiny, dark, black to rather dull bronze.

Microsculpture: Microlines shallow, though distinct over entire surface; sculpticells flat. Mesh pattern as follows: of labrum isodiametric to slightly transverse; of clypeus, frons, vertex, and elytra, isodiametric; of pronotum and lateral and ventral surfaces, markedly transverse.

Luster: Surface shining, but not iridescent.

Head: Eyes not prominent. Genae smooth, not rugose; frons smooth, not sulcate between anterior and posterior supraorbital setigerous punctures.

Prothorax: Pronotum as in Fig. 1; disc slightly convex. Base distinctly wider than apex; sides rounded, not sinuate posteriorly, widest point at about transverse mid-line.

Fig. 1. Photograph of dorsal surface of Holotype of *Onypterygia donato*, new species.

Basal and apical lateral angles rounded, apical margin slightly concave, narrowly and distinctly beaded; basal margin slightly convex, distinctly beaded medially; lateral margins slightly elevated anteriorly and posteriorly, distinctly beaded medially, beading evanescent anteriorly and posteriorly. Anterior transverse impression sharp, in median two-thirds; postero-lateral impressions impunctate, linear, narrow, sharply impressed, each isolated laterally from marginal groove by slight surface convexity. Prosternum with apex of intercoxal process rounded.

Pterothorax: Mesepisternum impunctate. Metasternum short, metepisternum slightly longer than wide.

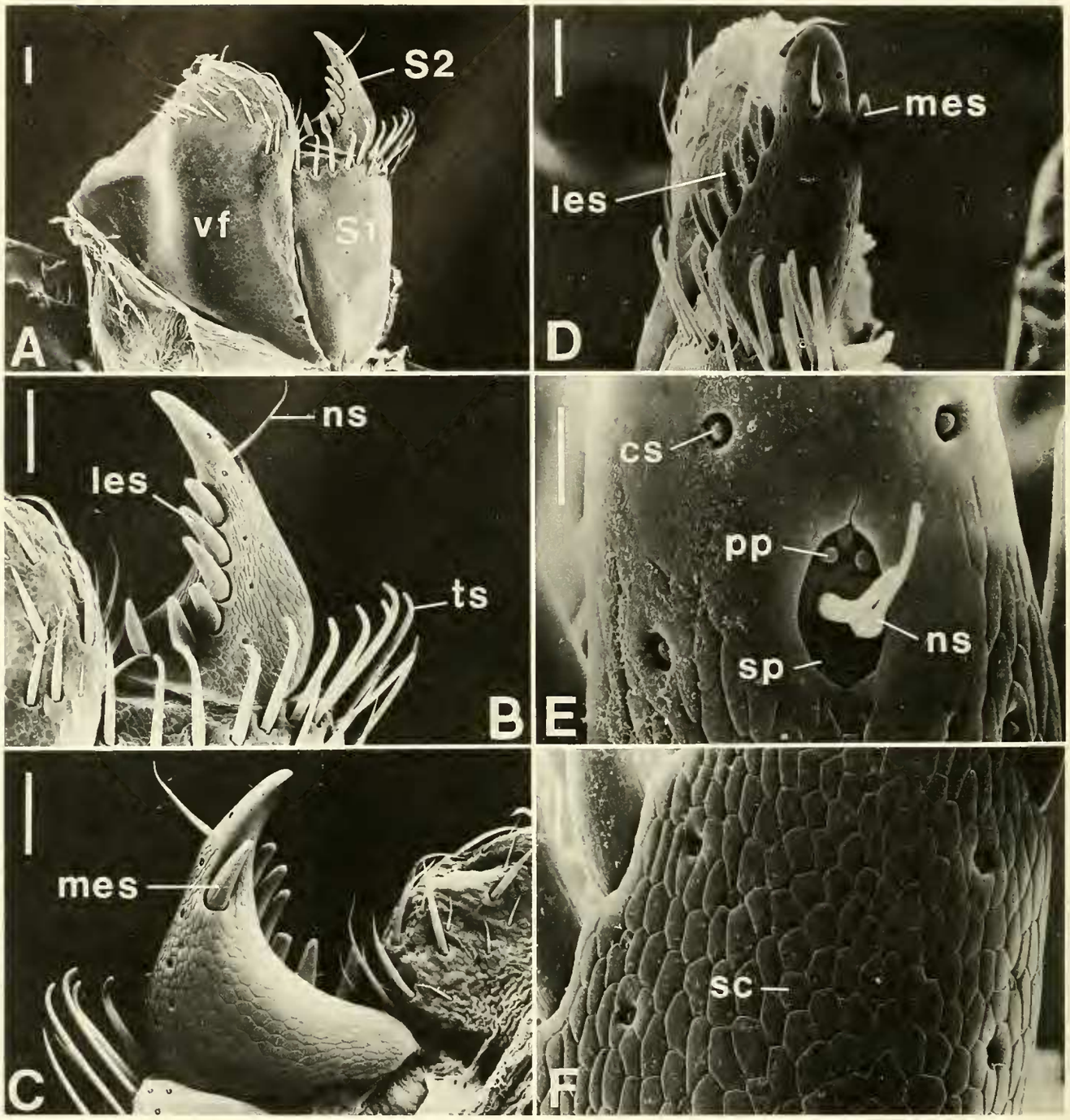

Fig. 2. SEM photographs of left ovipositor sclerites of *Onypterygia donato,* new species. A, Valvifer, and stylomeres 1 and 2, left lateral aspect. B, Stylomere 2 and margins of valvifer and stylomere 1, left lateral aspect. C, Stylomere 2 and margins of valvifer and stylomere 1, medial aspect. D, Stylomere 2 and parts of valvifer and stylomere 1, ventral aspect. E, Stylomere 2, prepapical portion, ventral aspect. F, Stylomere 2, medial portion, ventral aspect. Abbreviations: **cs,** campaniform sensillum; **les,** lateral ensiform seta; **mes,** median ensiform seta; **ns,** nematiform seta; **pp,** pit peg; **sc,** sculpticell (microsculpture); **sp,** sensory pit; **S1,** stylomere 1; **S2,** stylomere 2; **ts,** trichoid seta; and **vf,** valvifer. Scale bars: A–D = 50 μm; E–F = 10 μm.

Elytra: Each elytron with humerus markedly rounded and narrowed; apex with prominent spines; sutural apex denticulate. Prominent preapical callus in intervals 7–8. Interneurs mostly shallow, interneur 1 deepened preapically, interneurs 2–6 absent preapically. Intervals flat, interval 3 with two setigerous punctures—one near middle, and one in apical one-fourth. Lateral umbilicate punctures distinctly foveate.

Hind wings: Narrow and short, each ca. half length of elytron, without reflexed apical portion.

Legs: Hind femora without dorso-apical

setae. Hind tarsus with tarsomeres 1 and 2 bisulcate, one groove each side; tarsomere 5 with several setae on ventro-lateral and ventro-medial margins.

Abdomen: Sterna smooth. Sterna 4–7 with ambulatory setae: 4–6 each with one pair; 7 with two pairs.

Ovipositor (Fig. 2A–F) *and internal genitalia:* Valvifer (Fig. 2A, **vf**) with apex subtruncate, and with several rows of trichoid setae. Stylomere 1 (**S1**) with row of trichoid setae apically. Stylomere 2 (**S2**) elongate, falcate; surface with microsculpture, microlines especially distinct on ventral surface, sculpticells short (Fig. 2F, **sc**) to long and narrow; two rows of campaniform sensilla (Fig. 2E, **cs**); dorso-lateral margin with row of six to seven ensiform setae (**les**), medially with single ensiform seta (Fig. 2C, **mes**); ventral sensory pit (Fig. 2E, **sp**) prepical, with pair of nematiform setae (**ns**) and three pit pegs (**pp**).

Internal genitalia with walls of bursa copulatrix with accordion-like, slightly sclerotized folds; spermathecal duct joined to base of common oviduct; spermatheca small, bulb-like; duct of spermathecal gland long (cf. Liebherr 1986: 13, Fig. 5c).

Habitat.—According to the collector, Norman Penny, the holotype was collected in rather dry primary evergreen montane forest, probably from understory vegetation, by beating. From this information, we assume that this species is arboreal, as are most of the other known species of *Onypterygia.*

Geographical distribution.—This species is known from the type locality, only.

Chorological affinities.—The range of *O. donato* is overlapped by the following species of *Onypterygia* that occur in Costa Rica: *O. chrysura* Bates, *O. quadrispinosa* Bates, *O. tricolor* Dejean, and an undescribed species. *O. fulgens* Dejean and *O. angustata* Chevrolat probably occur in Costa Rica, but they are not recorded from there. The ranges of *O. donato* and its postulated close relatives (*O. iris* and *O. championi*) are non-overlapping.

Phylogenetic relationships.—Based on the similarity in the presumably apotypic feature of elytra with long apical spines, *O. donato* and *O. championi* are postulated to be adelphotaxa. The adelphotaxon of the common ancestor of the former species is postulated to be *O. iris,* based on the similarity in the presumed apotypic feature of bicolored elytra.

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John S. Scott, of our Department, photographed the holotype and prepared the plates that illustrate so well the habitus and ovipositor of *O. donato.* We acknowledge also the assistance of George D. Braybrook in photographing the ovipositor sclerites.

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